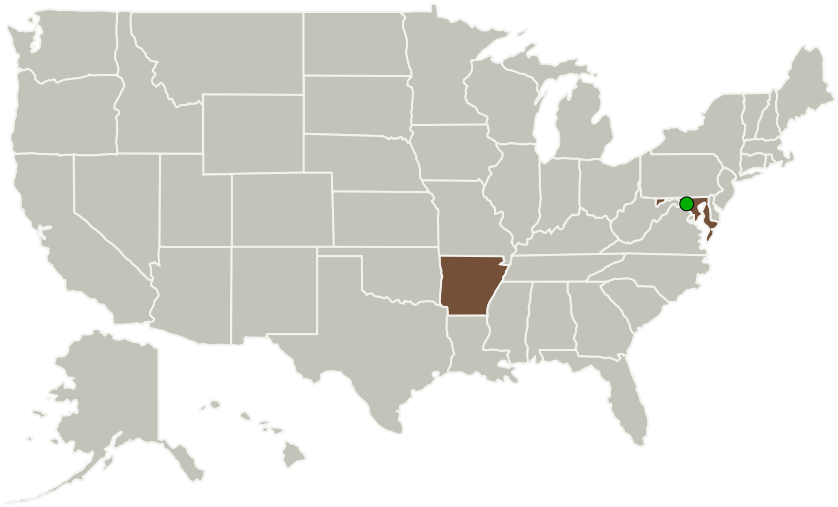
Development of a Lower-SWaP, RAD-Tolerant, Thermally Stable High Speed Fiber Optics Network for Harsh Environment Applications, Phase I

Completed Technology Project (2010 - 2010)

Project Introduction

The proposed Phase I objectives and work plan, carried through to completion, will result in the development of a RAD-tolerant, high-speed, multi-channel fiber optics transceiver, associated reconfigurable intelligent node communications architecture, and supporting hardware for intra-vehicular and ground-based optical networking applications with data rates exceeding 3.2Gbps per channel. The goals of this proposed program are perfectly in-line with the subtopic goals, which are to: "(1) develop high-performance processors and memory architectures and reliable electronic systems, and (2) develop an avionics architecture that is flexible, scalable, extensible, adaptable, and reusable." "The subtopic objective is to elicit novel architectural concepts and component technologies that are realistic and operate effectively and credibly in environments consistent with the future NASA Science missions."

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Space Photonics, Inc.	Lead Organization	Industry	Fayetteville, Arkansas
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

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Primary U.S. Work Locations	
Arkansas	Maryland

Project Transitions

January 2010: Project Start

July 2010: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138926)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Space Photonics, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

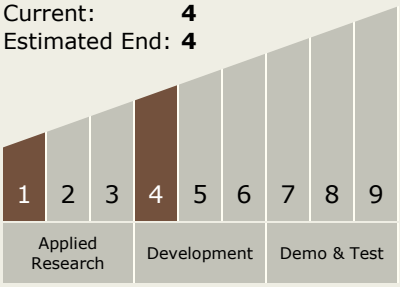
Carlos Torrez

Principal Investigator:

Matthew Leftwich

Technology Maturity (TRL)

Start: **1**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX02 Flight Computing and Avionics
  - TX02.2 Avionics Systems and Subsystems
    - TX02.2.5 High Speed Onboard Interconnects and Networks

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System